

### AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application.

#### Listing of Claims

1. (Currently Amended) A method for tracking a target, comprising:  
receiving an input image including a target having a target position;  
~~determining at least one component~~ components in a window of the image according to an edge direction of connected pixels ~~within the component, the window being associated with the target position;~~  
for all determined components in the window, determining possible track-to-component associations and the target position that would be derived from each association using tracks in a track file;  
~~associating the at least one component with one of a plurality of predetermined tracks, where at least one track being associated with the target position, based on the edge direction of said component~~ assigning a weight to each track-to-component association in the window;  
determining a best set of track-to-component associations in the window and using this to determine current target position; and  
updating the ~~track~~ tracks in the track file based on the ~~associated component to determine determined~~ current target position.

Claim 2 (Canceled)

3. (Currently Amended) The method of claim 1, wherein said ~~determining includes~~ ~~determining said at least one component~~ components in the window is based on said connected pixels satisfying a predetermined threshold.

4. (Currently Amended) The method of claim 1, wherein said updating the tracks in the track file includes determining velocity of the target.

5. (Currently Amended) The method of claim 1, ~~further comprising:~~  
~~generating a track file including the plurality of tracks; and, wherein~~  
~~updating the tracks in the track file by associating one of the plurality of tracks in~~  
~~accordance with a predetermined threshold being satisfied, wherein updating the track file~~  
includes

~~setting said one of the plurality of tracks~~ any track to an established track when said a  
predetermined threshold is satisfied, and

~~deleting said one of the plurality of tracks~~ said any track when said predetermined  
threshold is not satisfied.

6. (Currently Amended) The method of claim 5, wherein setting said ~~one of the plurality~~  
~~of tracks~~ any track to an established track occurs when a number of times said ~~one of the~~  
~~plurality of tracks~~ any track is associated with a component exceeds a first threshold in a time  
period, and deleting said ~~one of the plurality of tracks~~ ~~occurs~~ any track when the number of times

~~said one of the plurality of tracks~~ any track is associated with a components does not exceed a second threshold in the time period.

Claim 7 (Canceled)

8. (Currently Amended) The method of claim ~~7~~ 1, wherein said updating ~~the tracks~~ includes ~~updating the track based on the associated component having an assigned weight satisfying a predetermined threshold. window associated with an estimated target position deleting a track if there is failure to associate the track with a component for a predetermined amount of time in determining possible track-to-component associations.~~

9. (Currently Amended) The method of claim 1, further comprising:  
generating a track to associate with ~~the~~ a component when ~~failing to associate the component with one of the plurality of predetermined tracks~~ there is failure to associate the component with a track in the track file in determining possible track-to-component associations.

10. (Currently Amended) A device for tracking a target, comprising:  
a processor for ~~generating a plurality of associations between a component determined from an input image including a target having a target position, and at least one predetermined track from a track file~~ receiving an input image including the target having a target position; and  
a track file including a plurality of predetermined tracks, wherein said processor ~~to select one of the plurality of associations of the component and the at least one track based on said~~

~~selected association satisfying a predetermined threshold to determine current target position,~~  
and

~~wherein the at least one track being updated with the associated component in the track~~  
~~file in response to the selection of association~~

determines components in a window of the image according to an edge direction of  
connected pixels, the window being associated with the target position;

for all determined components in the window, determines possible track-to-component  
associations and the target position that would be derived from each association using tracks in a  
track file;

assigns a weight to each track-to-component association in the window;

determines a best set of track-to-component associations in the window and using this to  
determine current target position; and

updates the tracks in the track file based on the determined current target position.

11. (Original) The device of claim 10, further comprising a memory to store instructions accessible by the processor.

Claim 12 (Canceled)

13. (Currently Amended) A machine-readable computer program product comprising a  
recording medium having stored thereon a plurality of executable instructions, the plurality of

~~instructions comprising instructions to~~ computer readable program executable by a computer for tracking a target by carrying out:

~~an input image including a target having a target position;~~

~~determine at least one component in the image according to an edge direction of connected pixels within the component;~~

~~associate the at least one component with one of a plurality of predetermined tracks, where at least one track being associated with the target position, based on the edge direction of said component;~~

~~update the track based on the associated component to determine current target position~~ receiving an input image including a target having a target position;

determining components in a window of the image according to an edge direction of connected pixels, the window being associated with the target position;

for all determined components in the window, determining possible track-to-component associations and the target position that would be derived from each association using tracks in a track file;

assigning a weight to each track-to-component association in the window;

determining a best set of track-to-component associations in the window and using this to determine current target position; and

updating the tracks in the track file based on the determined current target position.

Claim 14 (Canceled)

15. (Currently Amended) A method for tracking a target, comprising:

receiving an input image including a target having a target position;

determining a plurality of components in the image according to an edge direction of connected pixels within the component;

associating the plurality of components with a plurality of predetermined tracks, ~~where at least one track being associated with the target position,~~ based on the edge direction of said component, to generate a plurality of sets of track-to-component associations, wherein at least one track is associated with the target position and each component-being is associated with no more than one track in a set;

assigning a weight to each track-to-component association in a set based on the distance between each track and associated component as related to the target position;

determining the best set of track-to-component associations based on the total weight, calculated by adding the assigned weight for each track-to-component association in the set, for one of the sets summing up to a minimum value, wherein the best set determines the current target position.

16. (Original) The method of claim 15, wherein said associating includes generating at least one set of track-to-component associations wherein at least one track in the set fails to associate with a component.